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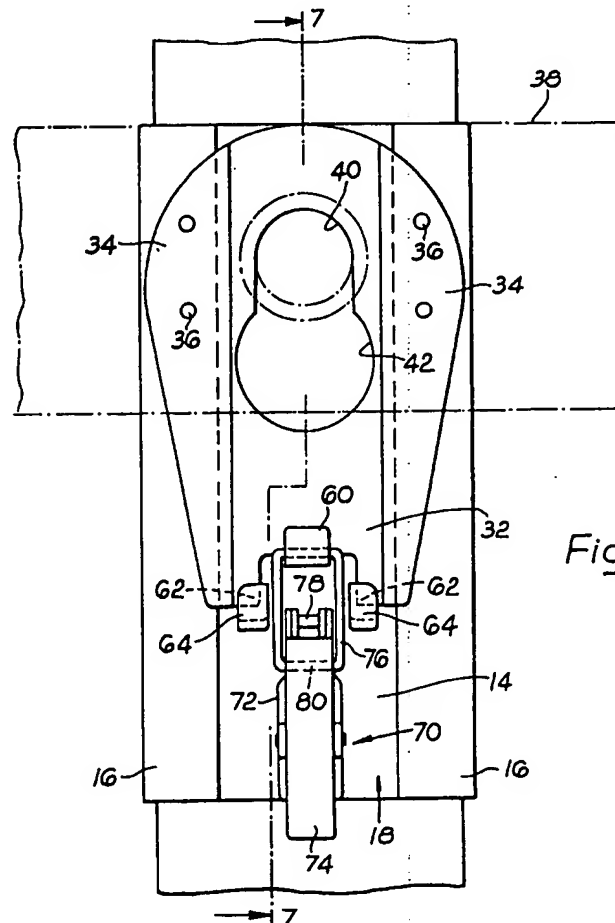
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(54) Scaffolding

(57) A fixing device for scaffolding, eg for connecting conventional ladders to simple bracing struts, comprises a plate 16 to be fixed for example by screws or rivets to one of the ladders or like and having a headed boss spaced from a pair of lugs 64. The other of the parts comprises a plate 34 to be fixed to the other of the struts or like, having a keyhole slot 42 for engagement with the headed boss and corners 62 for engagement with the lugs 64. When the headed boss is in the appropriate position in the keyhole slot 42, a fastener, eg over centre fastener 70, can be engaged to secure the parts in the fixed position.



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The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.
The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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Fig. 1

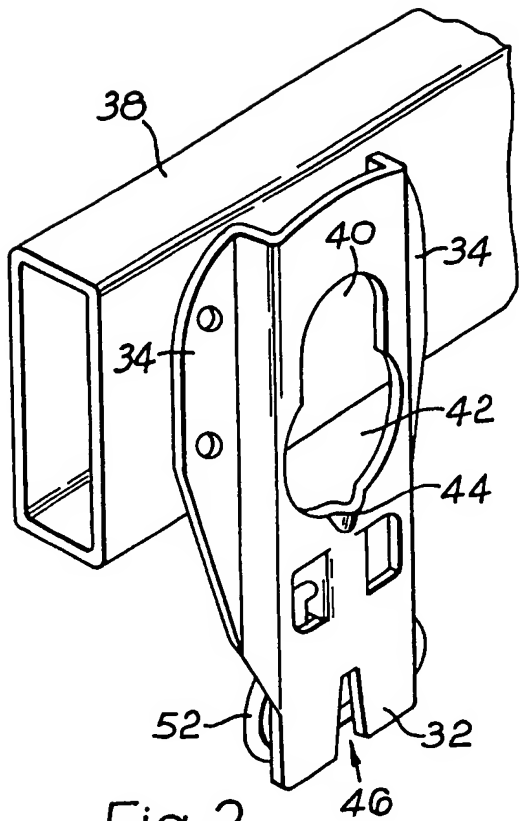
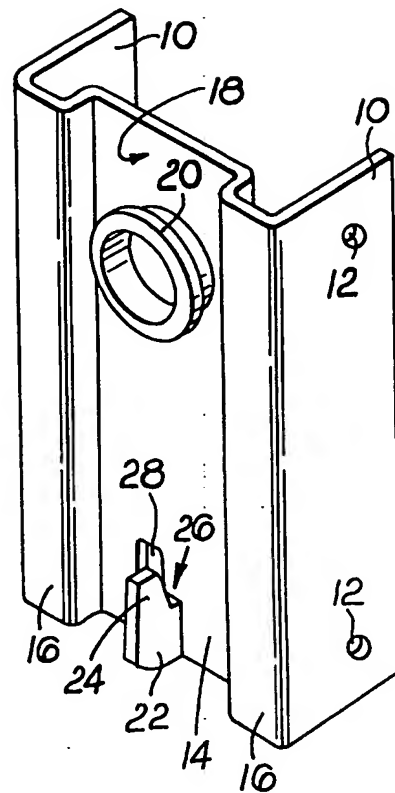


Fig. 2

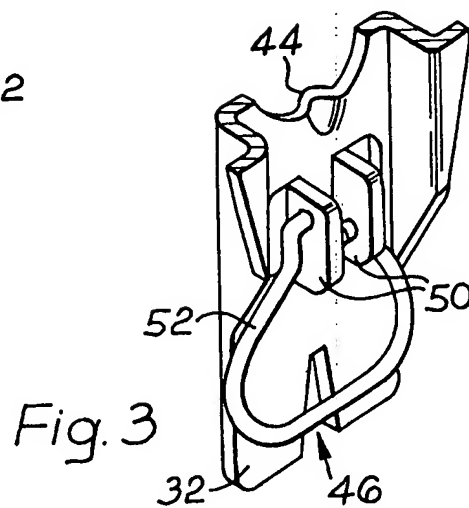
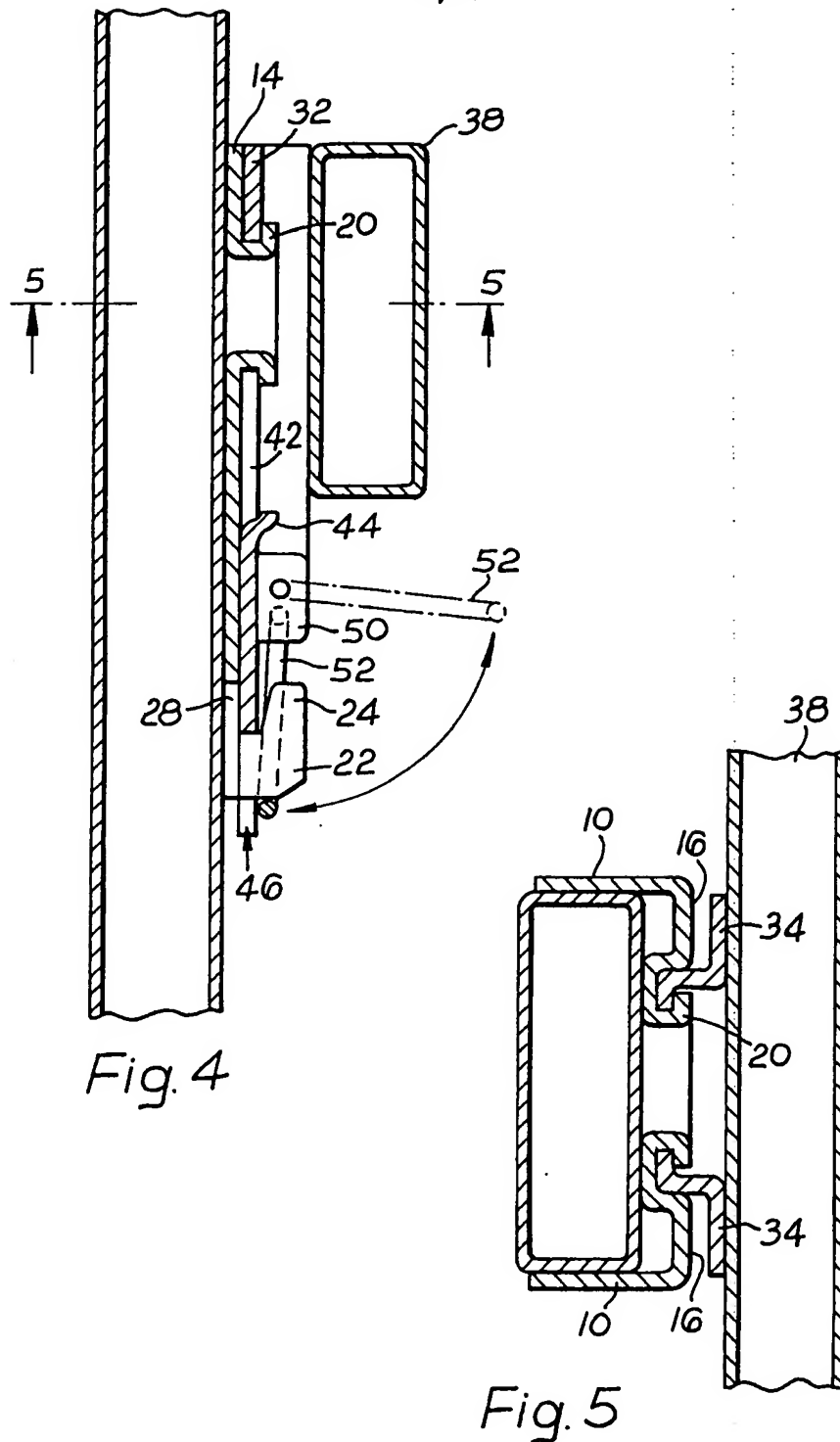


Fig. 3

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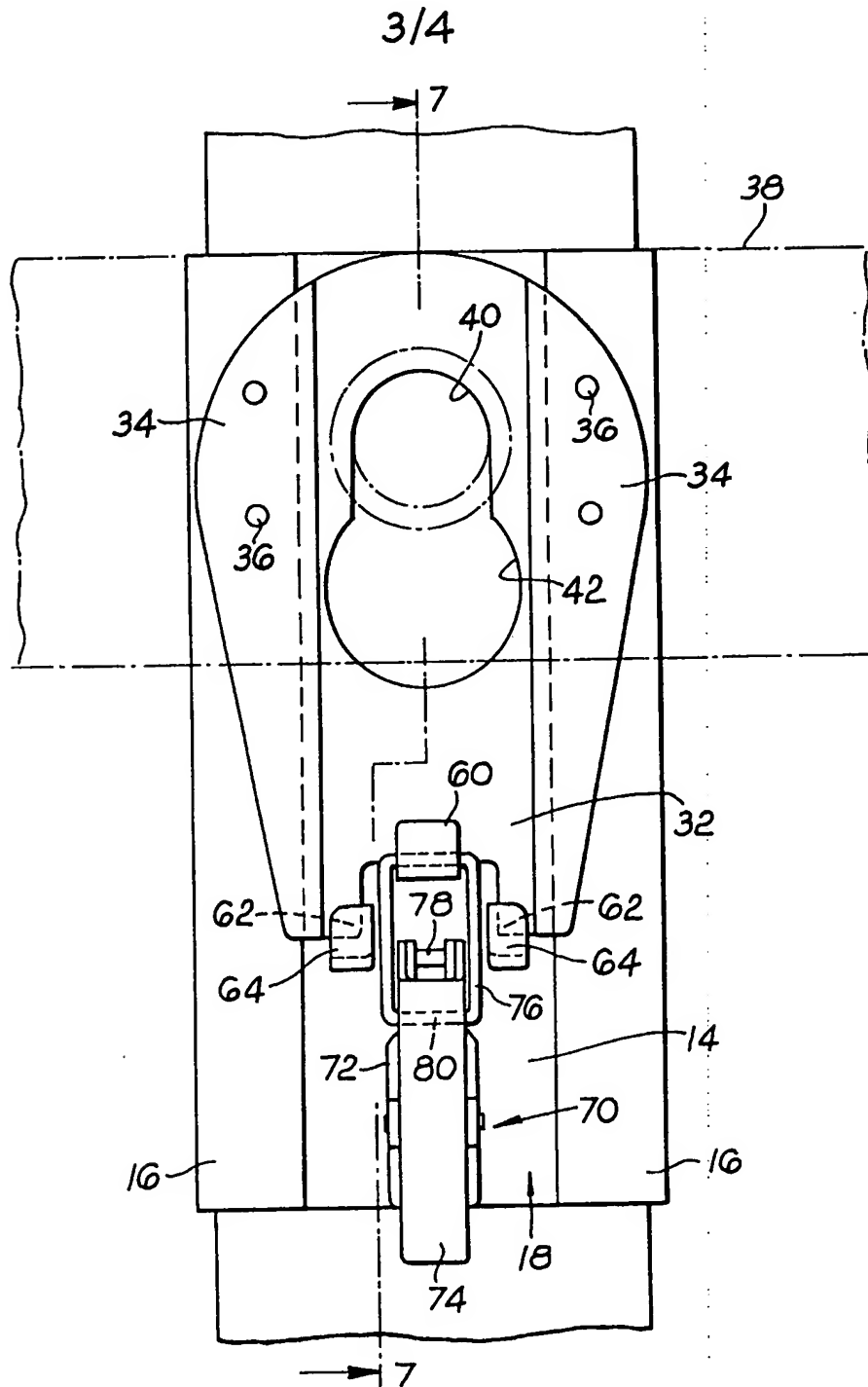


Fig. 6

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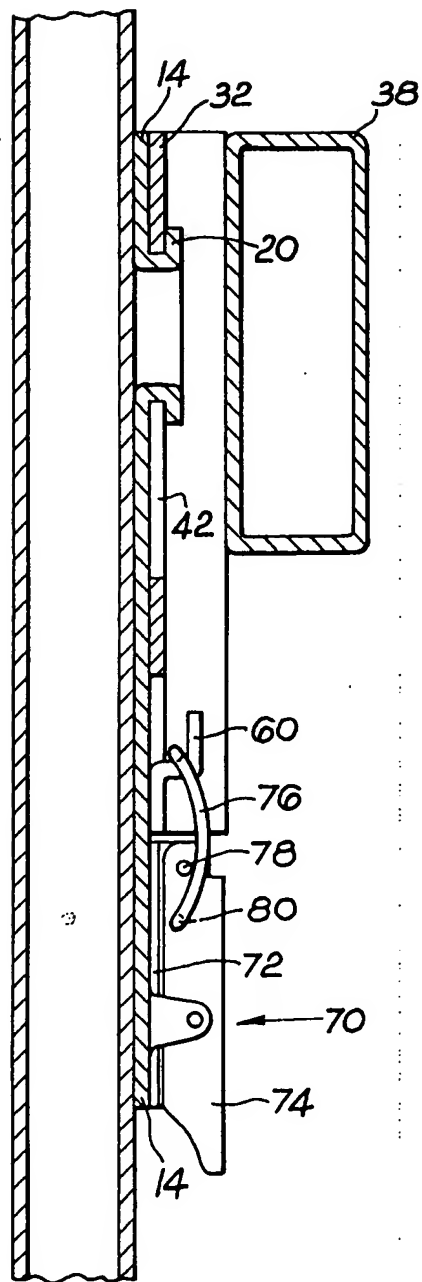


Fig. 7

SPECIFICATION

Scaffolding

5 This invention relates to scaffolding and its object is to provide parts for connecting conventional ladders to simple bracing struts to provide scaffold frames and the like.

According to the invention a fixing device
10 comprises two components, one of which is a plate carrying a headed boss projecting from one face of the plate and at least one lug likewise projecting from the same face of the plate, said lug having a lateral part extending
15 towards the boss; and the other of said components also comprising a plate provided with a keyhole slot for said boss, and with an end edge spaced from the slot so that the edge engages between the lateral part and the plate
20 to which the said part is fixed when the boss is at the narrower end of the keyhole slot; and a fastener on one of said components engageable with a resilient or with an over-centre action with the other of the components in a manner which prevents travel of
25 the boss along the slot whilst the fastener is so engaged.

One of the plates may be in the form of a channel: having side flanges to be fixed on
30 opposite edge faces of the styles of a ladder, and then if similar fastening devices are used on both styles, the two headed bosses can be substantially co-axial (although this is not important to the function of the individual fixing devices). The other of the plates may be
35 fixed to bracing struts which might be of a similar cross-section to the ladder styles.

Fixing of both components to the struts and styles respectively can be done for example
40 by rivets, especially pop rivets or screws.

The invention is more particularly described with reference to the accompanying drawings wherein:

Figure 1 is a perspective view of one component of a fixing device;

Figure 2 is a perspective view of a second component of the same device shown in position for fixing to a scaffold component;

Figure 3 is a fragmentary view of the device
50 shown in Fig. 2 taken from the opposite side;

Figure 4 is a sectional elevation showing the components of Figs. 1 and 2 assembled;

Figure 5 is a section taken on the line 5-5 of Fig. 4;

Figure 6 is an elevation of modified parts engaged together in similar fashion to that of Figs. 4 and 5; and

Figure 7 is a part sectional view taken on the line 7-7 of Fig. 6.

60 Referring first to Fig. 1, the part shown therein is intended to be fitted on the side of a ladder style, for example an aluminium ladder having styles made of rectangular section light alloy tube, and this part is a channel
65 section comprising side flanges 10 to embrace

the style, the part being fixed by means of rivets or screws through holes 12.

70 The base of the channel comprises a plate 14 which is stepped inwardly in relation to marginal portions 16 so as to provide a shallow groove 18 to receive a complementary formation on the other fixing device component as hereinbefore described.

The plate 14 is provided with a headed
75 boss 20 which may be in the form of a short tubular extension with a thickened rim. The component 20 may be formed out of the material of the plate 14 by a suitable series of press operations or it may be a separate component for example welded in place.

80 The plate is also provided with a lug 22 having an extension 24 which overlies the plate but is spaced from the plate by a slot 26 opening at the end adjacent to the headed boss 20, and this lug 22 may be struck up out of material of the plate incidentally leaving a space 26 from which the lug has been
85 taken.

Returning now to Fig. 2, the second part of
90 the device comprises a plate 32 dimensioned to be received in the shallow recess or groove 18 and the cooperation of the sides of the plate with the sides of the shallow groove holds the two parts against relative rotation
95 when so arranged.

The plate 32 is integral with fixing ears 34 having holes 66 enabling it to be fixed to, for example, the bracing strut 38, either in the position in which the plate 32 extends generally transversely of the length of the strut 38 or in any of a range of other positions if, for example, the strut 38 is to be secured at an inclined angle to the length of the ladder style instead of transversely.

105 The plate 32 has a keyhole slot comprising a narrow parallel sided part 40 and a wider central part 42. The plate is formed with a projecting bulge 44 on one face. The purpose of the bulge 44 is to act as a stop, so that
110 when the plate as shown in Fig. 2 is to be removed from the part shown in Fig. 1, and the parts are initially displaced from the Fig. 4 position, bulge 44 will contact the largest diameter part 20 thus aligning the latter with the largest part of the keyhole slot 42 ready for
115 removal. Without such a bulge or equivalent the rim of the slot 42 might engage the neck of the boss, thus preventing the axial separation.

120 The lower end of the plate 32 (in the Figure) is provided with an open ended slot 46, and the purpose of the slot is to engage with the sides of the lug 22 after the boss 20 has been passed through the larger portion 42 of the keyhole slot, and the boss has been moved along the length of the slot to engage in the narrower portion, so that the head
125 overlies the edge of the slot around at least 180° of the periphery of the boss, as illustrated in Fig. 4.
130

A pair of lugs (Fig. 3) 50 is struck up out of the plate 32 and these are bored on parallel axes to provide fulcrums for intumed ends of a loop 52 of springy wire which forms a safety catch. Fig. 4 shows the catch in an open position and an engaged position respectively, engagement being below the bottom end of the lug 22. The non-alignment of the lug bores providing the fulcrums for the loop can be used to provide an over-centre action ensuring that the loop is held fast in the engaged position against inadvertent movement therefrom.

In the modification shown in Fig. 6, the bottom part of plate 32 is modified to provide a keeper lug 60, or a mounting for a keeper lug 60, in a central position in relation to its width, and to provide a pair of corners 62 for engagement with a modified plate 14 in Fig. 6 to the same effect as the engagement of slot 46 and lug 22 in the Figs. 1 to 5 arrangement.

The modified plate 14 has a pair of projections 64 which provide lugs extending generally parallel to the plate 14 for the corners 62 to register behind.

Fig. 6 omits the headed boss 20 for clarity, although it is provided in the same way as in the Figs. 1 to 5 construction. Fig. 6 also shows the fastener 70 mounted on the plate 14 and of the kind comprising an attachment plate 72 pivotally mounting a lever 74 which in turn pivotally mounts a hasp 76, the respective pivots 78, 80 being such as to enable the closing movement of the lever to the illustrated position to draw the hasp firmly into contact with the keeper, again with an over-centre action, so as to ensure that the parts are held in the fixed condition against inadvertent movement therefrom.

CLAIMS

1. A fixing device comprising two components, one of which is a plate carrying a headed boss projecting from one face of the plate and at least one lug likewise projecting from the same face of the plate, said lug having a lateral part extending towards the boss; and the other of said components also comprising a plate provided with a keyhole slot for said boss, and with an end edge spaced from the slot so that the edge engages between the lateral part and the plate to which the said part is fixed when the boss is at the narrower end of the keyhole slot; and a fastener on one of said components engageable with a resilient or with an over-centre action with the other of the components in a manner which prevents travel of the boss along the slot whilst the fastener is so engaged.

2. A device as claimed in claim 1 wherein the plate is the form of a channel.

3. A fixing device as claimed in claim 1 or claim 2 wherein the fastener comprises a loop of springy wire having in turned non-co-axial

end portions fulcrummed in lugs on the component.

4. A fixing device as claimed in any preceding claim wherein the plate provided with the headed boss is provided with a pair of additional lugs boss is provided with a pair of additional lugs which engage over corners of the keyhole slotted plate when the components are fully engaged.

5. A fixing device as claimed in Claim 1 wherein the over-centre fastener comprises an attachment plate pivoted on a lever which in turn pivotally mounts a hasp, the respective pivots being such as to enable the closing movement of the lever to draw the hasp firmly into contact with the keeper via said over-centre action.

6. A fixing device substantially as described and with reference to Figs. 1 to 5 or Figs. 6 and 7 of the accompanying drawing.

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ABSTRACT:

CHG DATE=19990617 STATUS=O> A fixing device for scaffolding, eg for connecting conventional ladders to simple bracing struts, comprises a plate 16 to be fixed for example by screws or rivets to one of the ladders or like and having a headed boss spaced from a pair of lugs 64. The other of the parts comprises a plate 34 to be fixed to the other of the struts or like, having a keyhole slot 42 for engagement with the headed boss and corners 62 for

engagement with the lugs 64. When the headed boss is in the appropriate position in the keyhole slot 42, a fastener, eg over centre fastener 70, can be engaged to secure the parts in the fixed position. <IMAGE>